RISK FACTORS FOR POSTOPERATIVE BLADDER CATHETERIZATION AND THE INFLUENCE OF MAXIMUM BLADDER CAPACITY

Tammo Brouwer#, Cor Kalkman*, Eric van Roon#, Nic Veeger#. #Medical Center Leeuwarden, * University Medical Center Utrecht, The Netherlands

In this study we were looking for Risk Factors (RF) for postoperative bladder catheterization in surgical patients. Patients were randomized in two groups with different bladder volumes limits for bladder catheterization; a fixed postoperative bladder volume limit of 500mL or the patients own Maximum Bladder Capacity (MBC). Knowing the patient's own MBC reduces the incidence of postoperative bladder catheterization[1]. Of the 1851 patients 196 patients were catheterized (111 in 500group, 85 MBCgroup, RR=0.723, p=0.034). Table 1 is showing *univariate* analysis of all possible RF for postoperative bladder catheterization. Important RF were age ≥60 years, spinal anesthesia, duration of surgery ≥60 min, surgery on the lower abdomen or lower extremity and a preoperative bladder volume ≥150mL. *Multivariate* analyses showed that using the MBC in patients ≥60 years made no difference compared to using the 500mL limit. Here the incidence of catheterization is already high (17%) (Table 2). In patients <60 years the most important *multivariate adjusted* RF for bladder catheterization were spinal anesthesia and surgery ≥60min. Using the MBC reduces the chance be catheterized for patients <60 years (RR=0.62, P=0.009). For patients ≥60 years most important RF were spinal anesthesia and male gender (Table 3). We conclude that for patients ≥60 years it is important to monitor postoperative bladder volumes, especially in males, after spinal anesthesia and after surgery on the lower abdomen or extremity. In patients <60 years it is worth wile to ask them to measure their MBC before the operation. This will lower the chance of postoperative catherization, especially after spinal anesthesia, or when the duration of surgery is ≥60min or after surgery on the lower abdomen or lower extremity.

Background and goal of the study

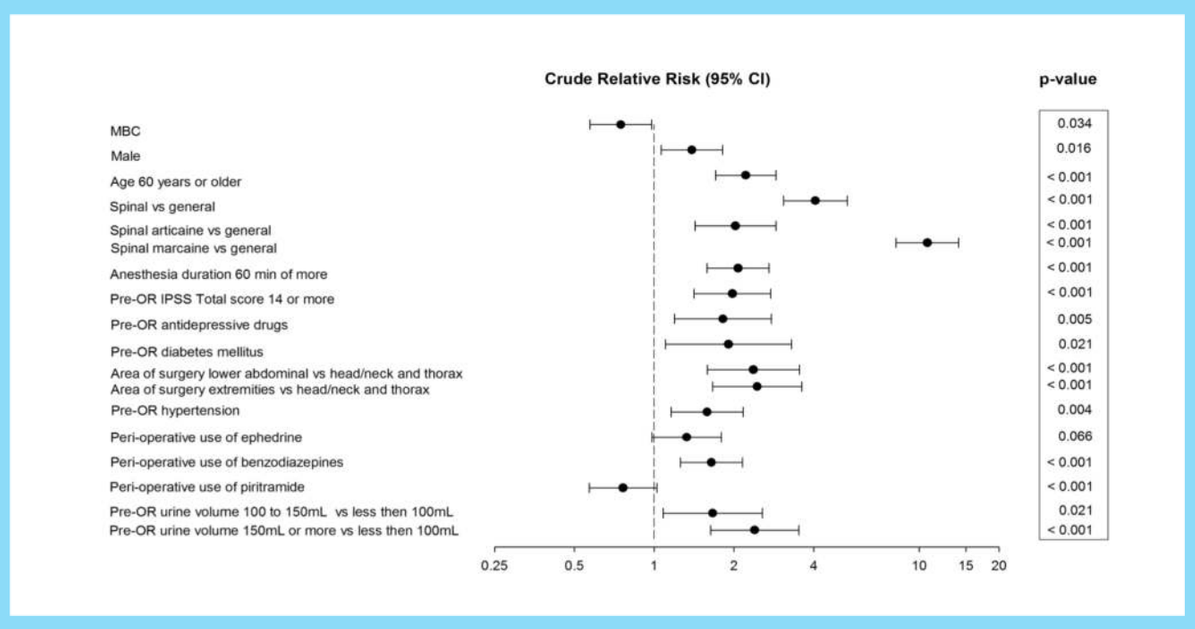
Post Operative Urinary Retention (POUR) followed by urinary catheterization is a well-known complication. Considered risk factors for POUR are many e.g. gender, age and type of surgery. The incidence of urinary catheterization will be lowered using the patients own Maximum Bladder Capacity (MBC) instead of using a fixed volume limit of 500mL[1]. We performed a prospective, descriptive study to analyze the risk factors for postoperative urinary catheterization, using the MBC and the 500mL limit in surgical patients.

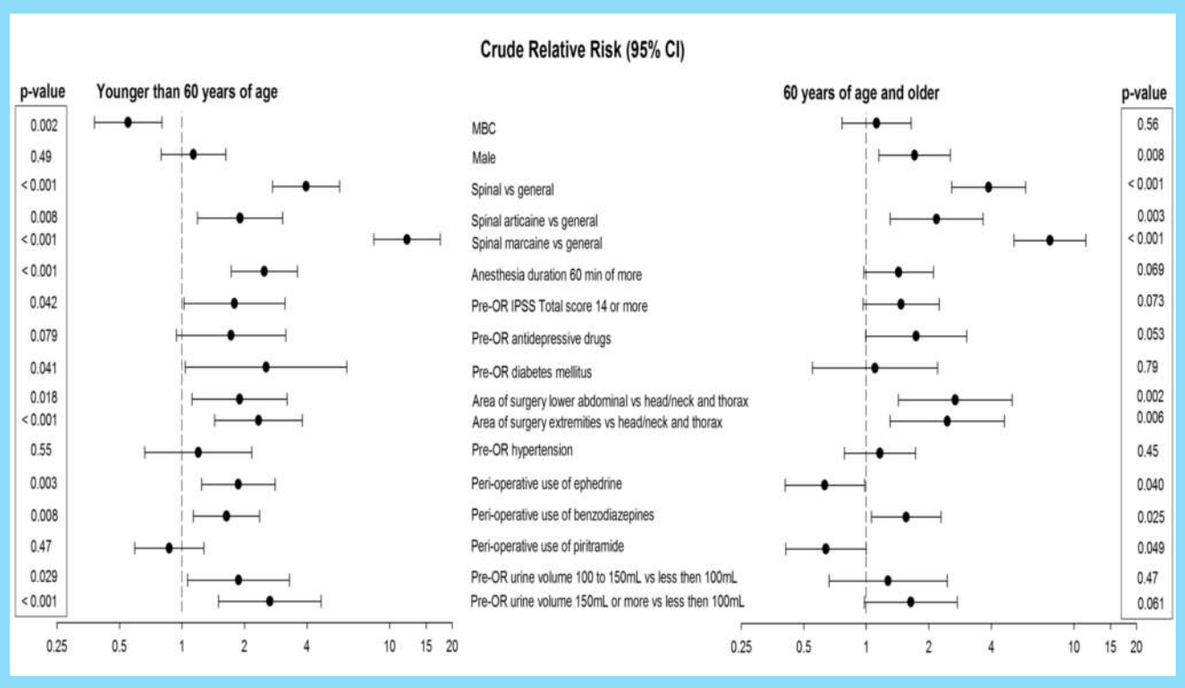
Materials & Methods

1851 Surgical patients operated under general or spinal anesthesia, without a perioperative urinary catheter, were included in the study. They were randomized in the 500mL group or the MBC group. Postoperatively their bladder volumes were hourly scanned by ultrasound (BladderScan® BVI9400) until they voided spontaneously, or their maximum bladder volume limit was reached and they were unable to void. Then the patient was catheterized. Preoperative, a list of possible risk factors was composed. Univariate and multivariate analyses were performed to calculate the incidence of urinary catheterization influenced by the MBC and the different risk factors.

Results & Discussion (Tables 1 ,2 and 3)

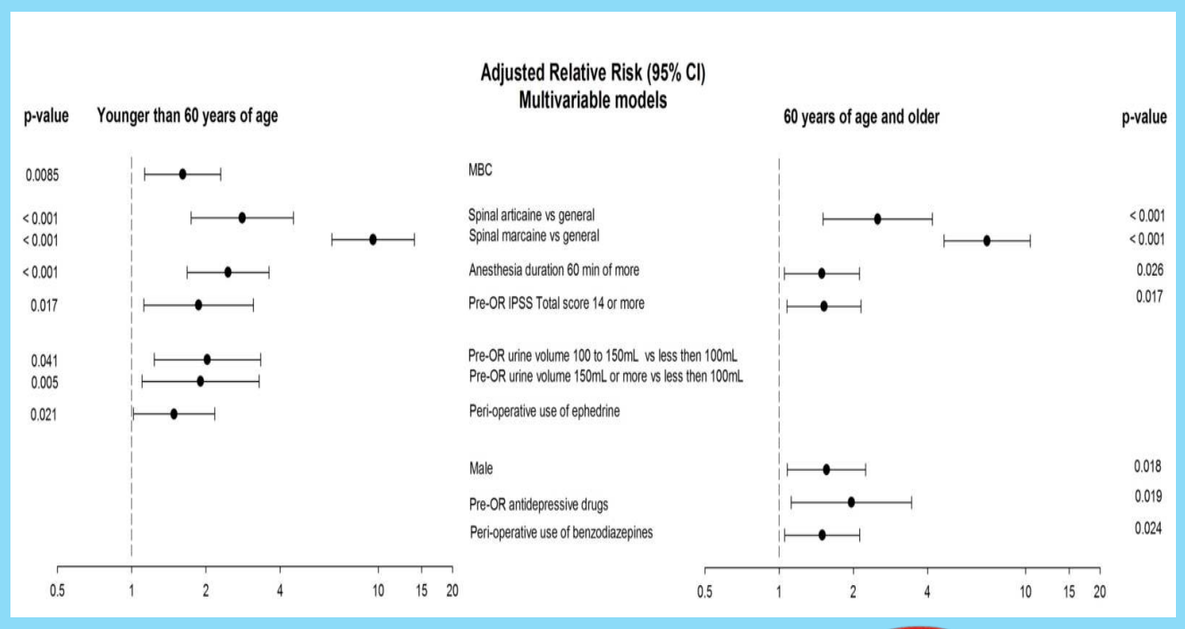
The MBC lowers the incidence of POUR (RR=0.723, p=0.034). The most prominent univariate risk factors for catheterization are displayed in Table 1. In a multivariate analyses the effect of the MBC was the same for all risk factors, except for age older than 60 years. Here the results are not influenced by the MBC (=effect modification, p=0.009). In these patient's the incidence of urinary catheterization was already high, around 17% for both groups (Table 2). Multivariable adjusted risk factors are shown in Table 3.





Conclusion

The most important risk factors for urinary catheterization in surgical patients is spinal anesthesia. For patients ≥60 years it is important to monitor postoperative bladder volumes, especially in males, after spinal anesthesia or after surgery on the lower abdomen or lower extremity. In patients <60 years it is worth wile to ask them to measure their MBC before the operation. This will lower the chance of postoperative catherization, especially after spinal anesthesia, or when duration of surgery is ≥60min or after surgery on the lower abdomen or lower extremity. Using the patient's own MBC can prevent unnecessary urinary catheterization in patients who are at risk. An implementation study will be started to see if this is feasible in clinical practice.



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